the course marked 2 is ten hours weekly for the second six weeks. Those who expect to work in mathematics at the University of Chicago during the coming summer, as well as those who desire further information, are requested to communicate with Professor Moore.

It was our intention to have appear in this issue a group of some of our contributors, but it was impossible for us to make all the necessary arrangements without delaying this number. So we have decided to have our group in the August-September number.

We are indebted to Dr. Artemas Martin for pamphlet copies of his valuable papers on "Formulas for the Sides of Rational Plane Triangles," and "A Method of Finding, without Tables, the Number Corresponding to a given Logarithm." These papers will appear in Vol. II., No. 11 of the *Mathematical Magazine.*

We have received a copy in pamphlet form of "Transcendental Numbers," by Prof. Heinrich Weber. Translated into English by Prof. W. W. Beman. Reprinted from the *Bulletin of the American Mathematical Society.* Thanks are due Professor Beman for giving us this reproduction in English of this very interesting and valuable paper.

Ginn & Co. announce for June a *Higher Arithmetic* by Wooster Woodruff Beman, of the University of Michigan, and David Eugene Smith, of the Michigan State Normal School. Teachers will await with much interest this new work on arithmetic by these well-known authors. The same publishers announce as ready "*An Elementary Arithmetic,*" by William W. Speer, being the second book of this new series.

BOOKS AND PERIODICALS.

Differential Equations. By D. A. Murray, Ph. D., of the Department of Mathematics in Cornell University. Price $1.90. 230 pages. New York and London : Longmans, Green & Co. 1897.

This work aims to meet the needs of students of physics and engineering who wish to use the subject as a tool, as well as of those students who have more time to give to the general theory and who wish to proceed to the study of the higher mathematics. For the first class, the theoretical explanations have been given as briefly as is consistent with clearness and in most cases the examples have been worked in full detail. In addition, two chapters have been introduced dealing with geometrical and physical problems. For the second class of students, notes have been inserted in the latter part of the book giving the demonstration of additional theorems and more vigorous proofs of theorems partially proved in the first part of the book. Interesting historical and biographical notes have been given in proper places, and many references are made to sources where fuller explanations and developments than the scope of the work allows may be found. We commend the book as providing an excellent introductory course in Differential Equations. J. M. C.

Analytical Geometry. By F. R. Bailey, A. M., and F. S. Woods, Ph. D., Assistant Professors of Mathematics in Massachusetts Institute of Technology. 371 pages. Boston and London : Ginn & Co. 1897.

This book is intended primarily for students in colleges and technical schools. The treatment of subjects included has been complete and rigorous. There are no important departures in method of treatment, but we notice that more space than is usual has been given to the more general form of the equations of the first and second degrees; that the equations of the conics have been derived from a single definition and then by translation of the origin equations of the second degree, wanting the xy term, are handled; and that only later the general equation of the second degree is fully discussed. In solid geometry the treatment is very satisfactory. The examples are numerous and well chosen. No use is made of determinants or calculus—a feature which many will commend and others criticise. Altogether the book is undoubtedly a good one and it should prove a useful text.

<div align="right">J. M. C.</div>

Higher Algebra. By George Lilley, Ph. D., LL. D., Ex-President South Dakota College. 504 pages. Silver, Burdett & Co., New York, Boston and Chicago. 1894.

The first 400 pages are the same as the author's "Elements." As the book only professes to cover the ground required for admission to colleges and universities, this feature is not so objectionable as it would be in a work intended for college and university use. Under the chapter on "Theory of Limits," there are several features which invite attention, such as the proof of the Theory; the sum of an infinite decreasing Geometrical Series; the invention of a symbol to represent an Infinitesimal, etc. However, to our mind the author's interpretation of the for $a/0$, or 0 *as a divisor*, is objectionable, and the proof that, in general, $a/0=0$, defective. The proof as given is,

$$\frac{12}{+2}=6, \quad \frac{12}{+1}=12, \quad \frac{12}{0}=0, \quad \frac{12}{-1}=-12, \quad \frac{12}{-2}=-6, \text{ etc.,}$$

where the quotient, 0, means that there is *no number of times zero* that the divisor, 0, can be subtracted from 12 and leave *zero*. It would misrepresent the author's position not to add that he invents a new symbol to represent an infinitesimal and shows that a (an infinitesimal)$=\infty$, and he would not confound the 0, arising from dividing a by *infinity*, with the *absolute zero*. nor *perhaps* the absolute zero with the zero, meaning "no number of times," in the quotient $a/0=0$. In interpreting the result, $t=a/0$, in Clairaut's problem of the Couriers, he would say, as there is no number of times zero that subtracted from a leaves *zero*, so there is no number of hours when they have been or will be together, and that the form $a/0$ indicates that *the problem is impossible*. That our readers may catch the spirit and meaning of his article, we have invited Dr. Lilley to give some elaboration to his views in a short article for the Monthly to be published in a future number. Although we do not approve some of the positions which the author has taken, still we regard the treatise on the whole as one of decided merit. The book has evidently been made for the class room and for actual use, and bears the marks of having been written by an experienced and practical teacher. We have only space to note further the demonstration for "Undetermined Coefficients," on page 419; "Pascal's Arithmetical Triangle," on page 442, which has published in the Monthly for December, 1894; and the many interesting notes on the subject of logarithms in the Appendix.   J. M. C.

The following periodicals have been received : Journal de Mathématiques Élémentaires, (1er Juin 1897); American Journal of Mathematics, (April, 1897); The Mathematical Gazette, (February, 1897); L' Intermédiare des Mathématiciens, (Mai, 1897); Miscellaneous Notes and Queries, (May, 1897); The Kansas University Quarterly, (January, 1897); The Monist, (April, 1897); Bulletin of the American Mathematical Society, (May, (1897); The Educational Times, (May, 1897), Science, (No. for June 11, 1897); The Review of Reviews, (June, 1897), The Cosmopolitan, (June, 1897); The Arena, (June, 1897).